APPENDIX B

Visual Tools to Enhance Learning

VISUAL TOOLS TO ENHANCE LEARNING

Expert problem solvers draw on their mental resources to plan a course of action, monitor the strategy while executing it, and then evaluate its effectiveness based on the outcomes it was intended to achieve. Simply put, metacognition is the ability to reflect on one's own thinking. Human beings have the capacity to organize information and shape it into workable patterns. This section provides visual tools to assist learners to organize information and to discern patterns in order to make sense of the overwhelming amount of information available today.

Human beings have the capacity to see the parts in relation to the whole. As a result, they are able to see patterns, congruencies, and inconsistencies. Visual tools assist students to analyze the whole and determine whether the parts are interdependent or interconnected. As students move in to the world of work, this form of systems thinking is of great benefit. Additionally, visual tools enable students to examine sequence, to look for cause and effect relationships, and to determine the need for more information about a particular aspect of the problem or issue at hand.
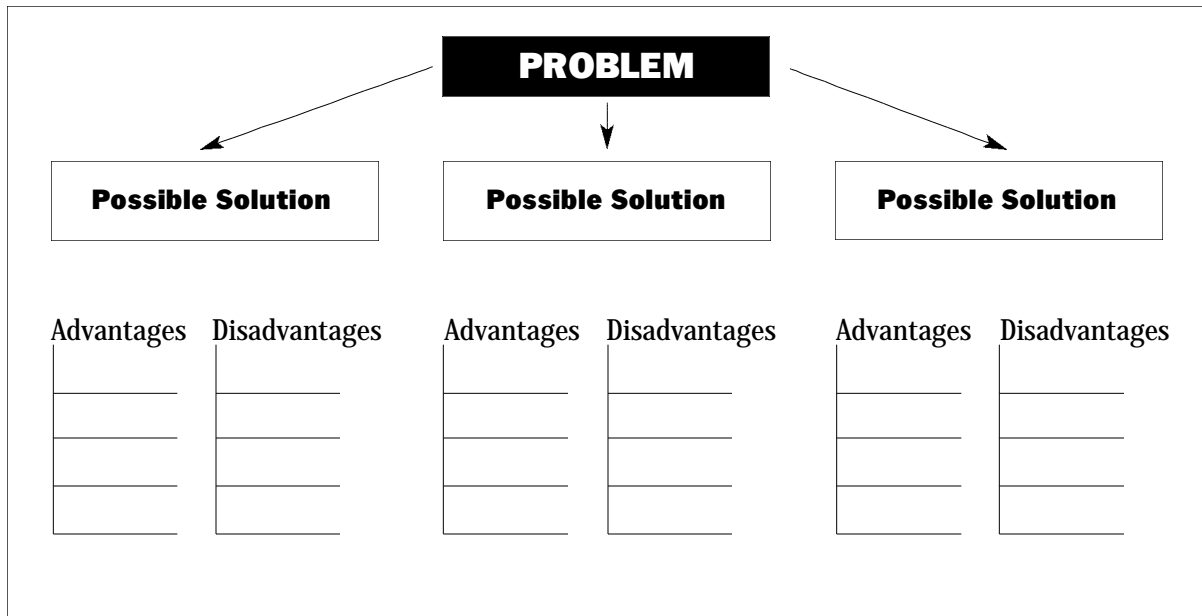
Visual tools allow students to work together more effectively. In cooperative groups, students may be called upon to solve a problem, considering the varied viewpoints of group members. Seeing their ideas on paper often engages students more actively in the discussion and allows them to see as well as hear the ideas of their classmates.

Visual tools are often teacher-developed. However, learners should be encouraged to develop novel, inventive, and creative ways to organize information and ideas. Students use these models to examine their intentions and summarize their impressions of events contributing to the outcome. Visual tools enable a student to examine both success and failure—and learn from his/her experiences. Employing mapping tools causes students to generate and consider alternatives and fosters flexible, creative thinking.

Many of the sample learning activities in this *Framework* require students to organize ideas and concepts to draw conclusions. One way to facilitate such thinking is to use visual tools such as *graphic organizers, concept maps, or webs.* These visual tools are used to transfer abstract concepts and processes into visual representations. They provide students with a mechanism to organize their thoughts and provide a visual format for study. Visual tools can be used to frame writing or speaking tasks or to focus group discussion. This section provides examples of visual tools that can be used in the health and physical education program.

Consequence Diagram/Decision Tree

Students use diagrams to visually depict outcomes for a given problem. This strategy enables students to identify cause and effect, make predictions, and justify choices.

PROBLEM		
Possible Solution	**Possible Solution**	**Possible Solution**

| Advantages	Disadvantages	Advantages	Disadvantages	Advantages	Disadvantages

HEALTH AND PHYSICAL EDUCATION APPLICATIONS

- Cooperative problem solving

- Case study analysis

- Background development for role-play

- Strategy development for games/sports

Flow Chart

Students use a flow chart to outline a series of events. This strategy fosters logical and sequential thinking and helps the student plan and organize his/her ideas.
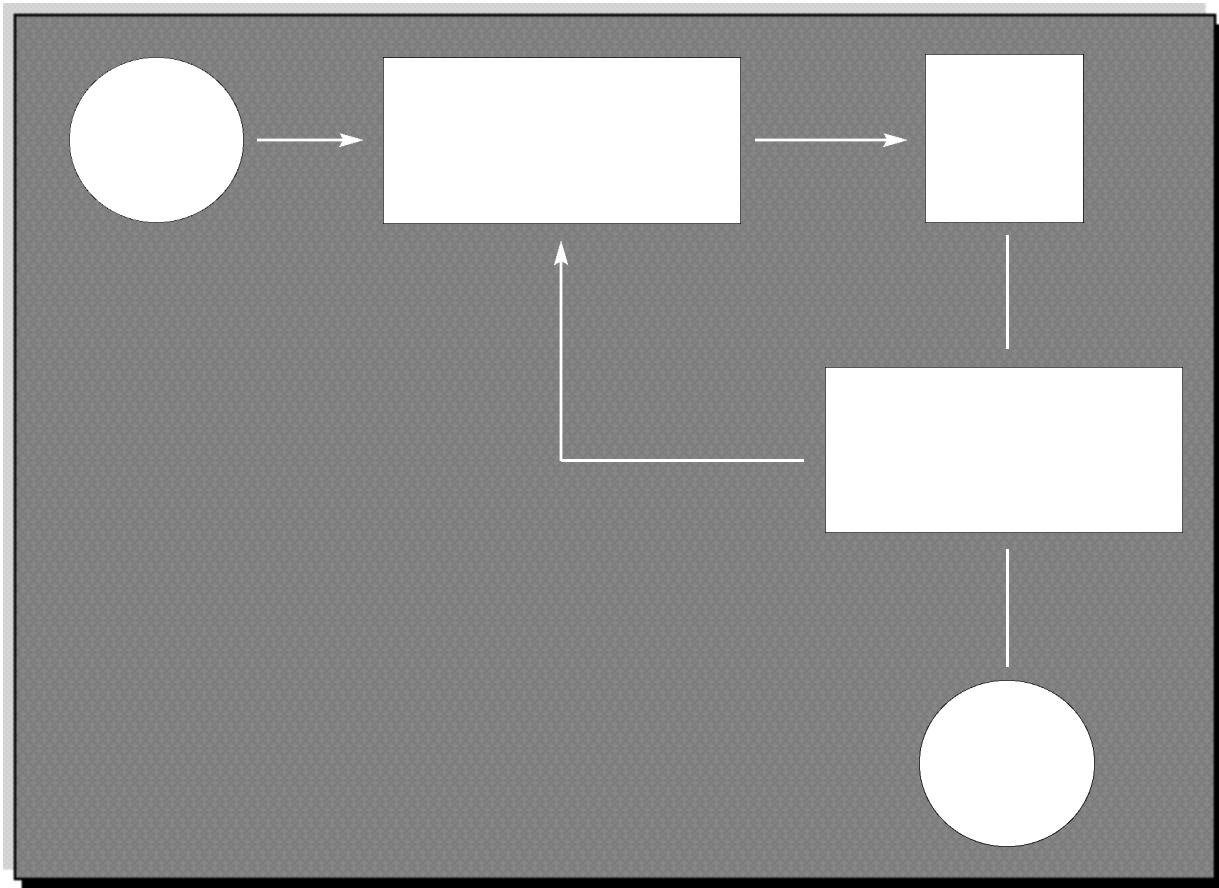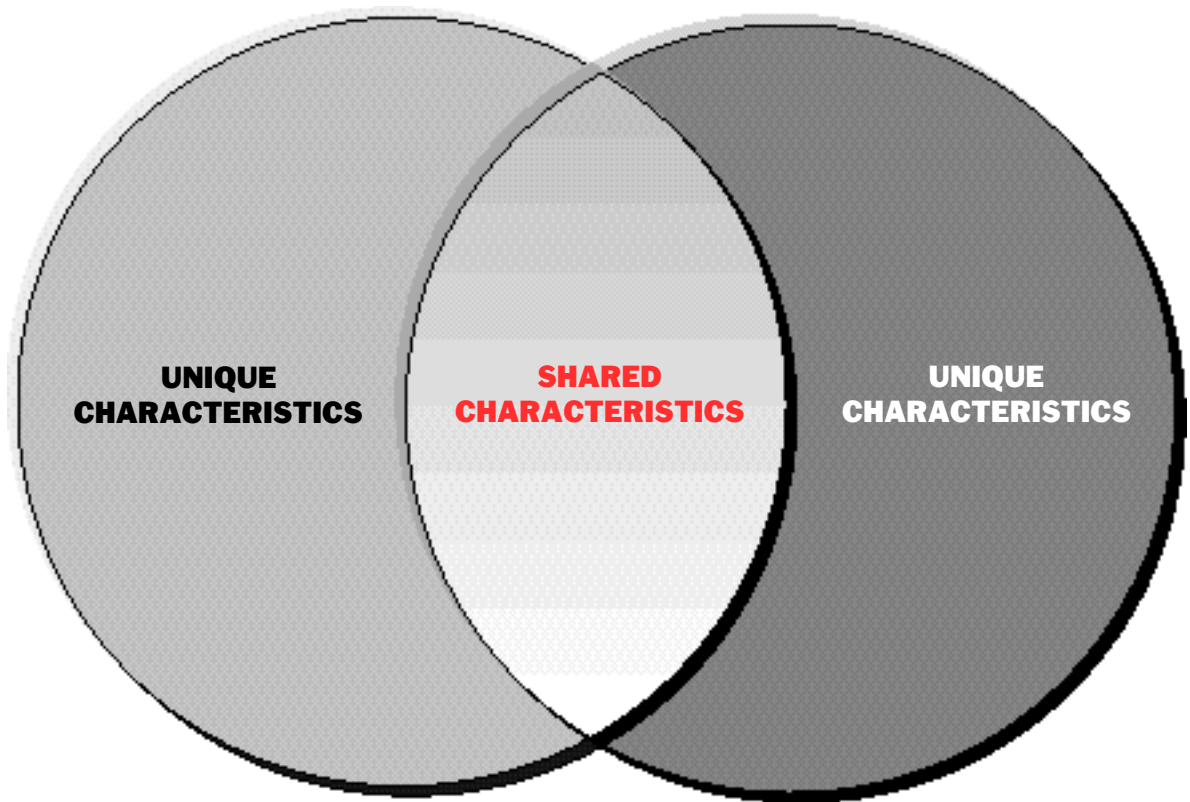

HEALTH AND PHYSICAL EDUCATION APPLICATIONS

- Tracking disease transmission

- Outlining the rules of sports and games

- Presenting historical perspectives (e.g., evolution of laws or government agencies)

Venn Diagram

Students use two overlapping circles to compare the characteristics of two items or concepts. More than two circles can be used for more complex content. Venn diagrams help students focus on similarities and differences and make subtle distinctions in order to draw conclusions.

UNIQUE CHARACTERISTICS   **SHARED CHARACTERISTICS**   **UNIQUE CHARACTERISTICS**
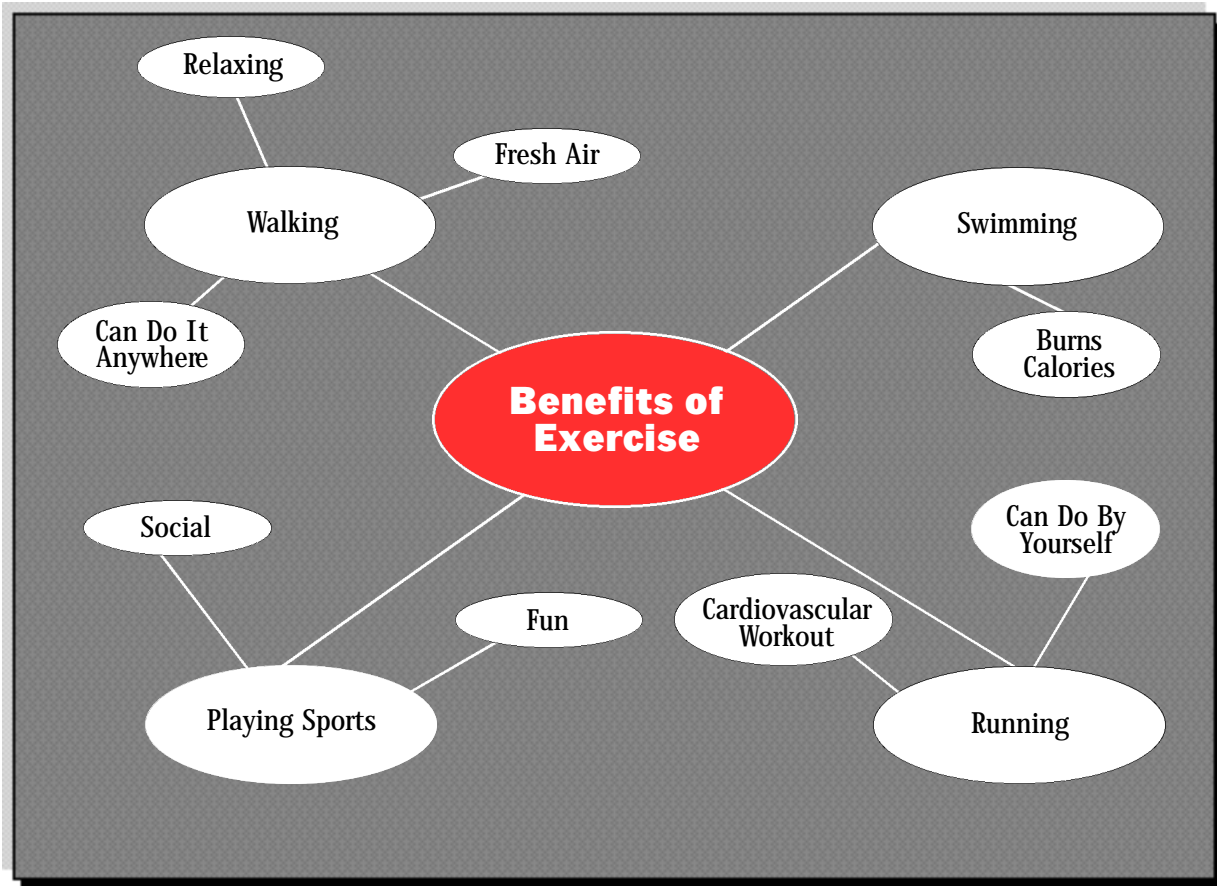
HEALTH AND PHYSICAL EDUCATION APPLICATIONS

- Comparing the types and kinds of physical activity (e.g., aerobic vs. anaerobic)

- Comparing contraceptive methods

- Analyzing and comparing food products

- Comparing labels and advertising

Webbing

Webbing provides a visual representation of how words and phrases connect to a topic. This strategy can be used as part of the brainstorming process to generate a wide range of ideas, concepts, and topics for writing or discussion.

```
        Relaxing

                  Fresh Air
                                              Swimming
          Walking
                                                   Burns
   Can Do It                                       Calories
   Anywhere
                      Benefits of
                       Exercise
   Social                                      Can Do By
                                               Yourself
                          Cardiovascular
                Fun       Workout
   Playing Sports                             Running
```

HEALTH AND PHYSICAL EDUCATION APPLICATIONS

■ Outlining refusal skills (e.g., comparing refusal strategies, ways to say no)

■ Describing the characteristics of families

■ Listing the benefits of exercise

Concept Mapping

Students identify a set of concepts associated with a main idea and rank the concepts from most general to most specific. This strategy helps students connect ideas, identify the most important concepts, and organize ideas for speaking or writing.
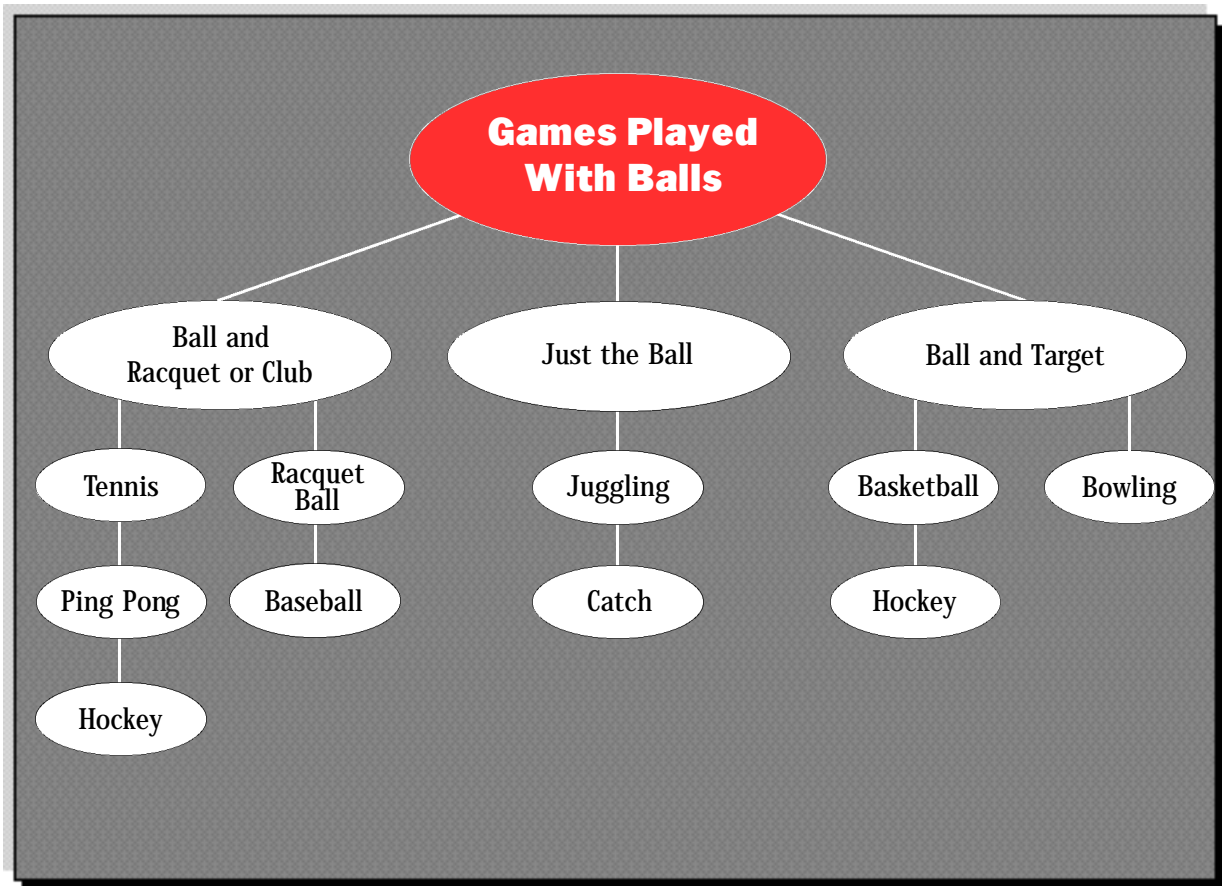
HEALTH AND PHYSICAL EDUCATION APPLICATIONS

- Describing the components of health/wellness

- Describing the components of health-related fitness

- Classifying the types of drugs and their effects

- Categorizing games played with balls or games requiring teams

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The 5 Ws

Students gather information in a structured format, responding to specific questions. The information can be easily summarized. This strategy helps students visualize their ideas and answers in a sequential, organized manner.

| WHO?	WHAT?	WHEN?	WHERE?	WHY?
SUMMARY SENTENCE:				

HEALTH AND PHYSICAL EDUCATION APPLICATIONS

- Analyzing case studies or risk profiles

- Developing stories or creating video vignettes

- Analyzing position play in sports and games

Cause and Effect Chart

This strategy enables students to visualize the events or conditions that led to a particular situation or event. It assists students to respond to specific questions about a situation, focusing on cause and consequence.

Question: _____

Cause 1:	

| Cause 2: | |

| Cause 3: | Result: |

| Cause 4: | |
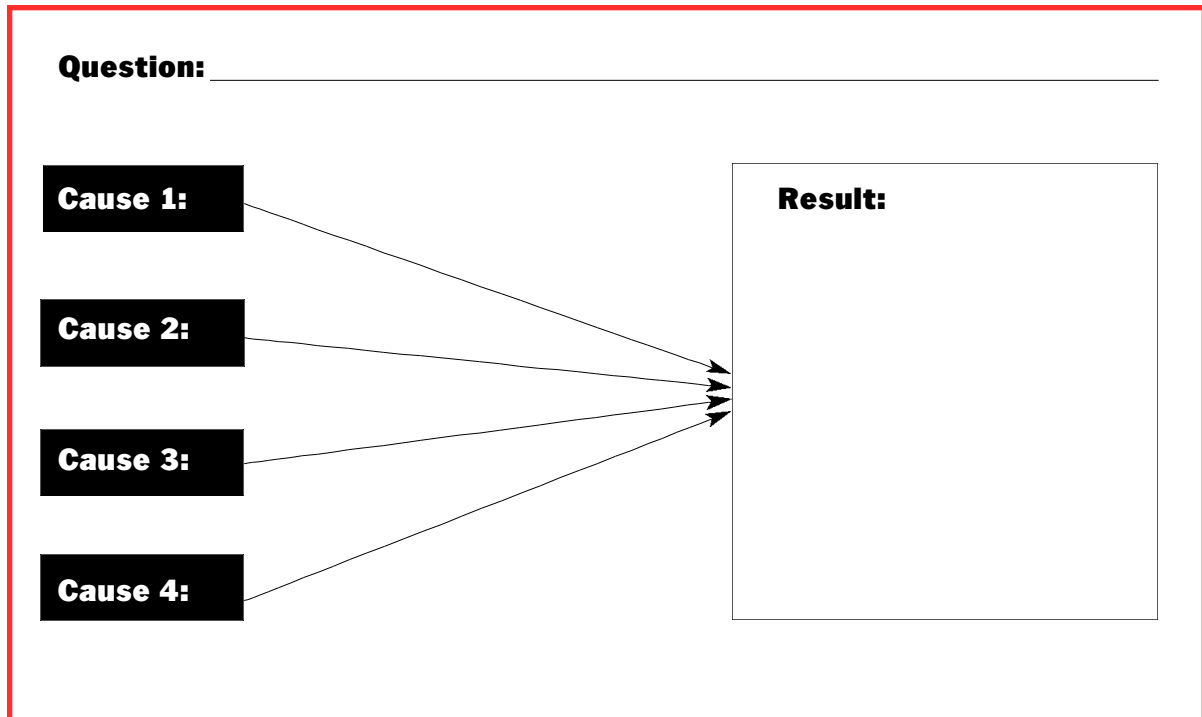
HEALTH AND PHYSICAL EDUCATION APPLICATIONS

- Solving problems as part of a team

- Conducting a risk analysis

- Analyzing the impact of alcohol on driving or sexual decision making

- Analyzing game/sport performance and strategy

Comparison Chart

Students compare and contrast two or more topics (people, places, events, or ideas) and use the information to support verbal or written positions.

|	TOPIC 1	TOPIC 2
Element 1		
Element 2		
Element 3		
Element 4		

HEALTH AND PHYSICAL EDUCATION APPLICATIONS

- Analyzing the use of contraceptives by males and females

- Comparing the health benefits of various physical activities

- Comparing health insurance coverage provided by employers

Concept Ladder

Students outline ideas about a person, item, or topic and develop the ideas into an organized framework. This strategy can be used during brainstorming or to frame writing activities.

Made (used for)?

Parts of?

Gear/Equipment?

Types of?

Made of?

Kind of?
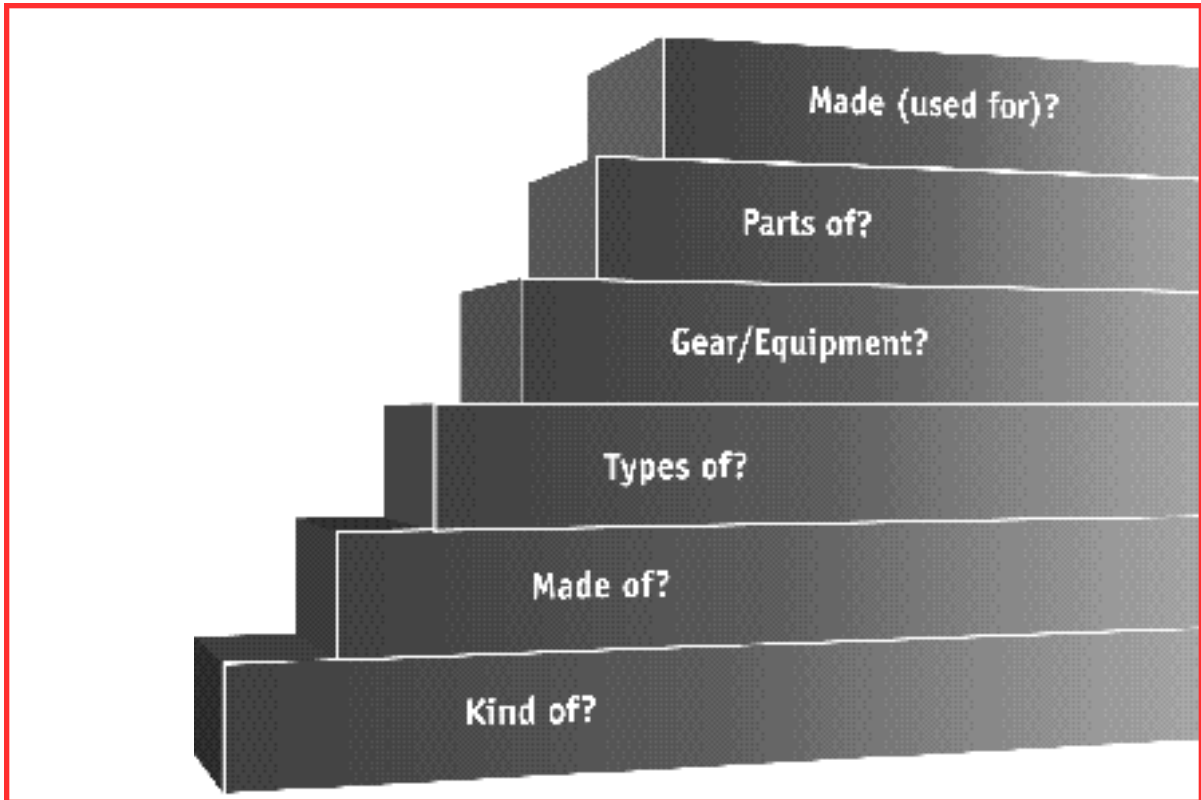
HEALTH AND PHYSICAL EDUCATION APPLICATIONS

- Classifying food groups or nutrients

- Analyzing recipes

- Describing the appropriate use of safety equipment for games, sports, or recreational activities

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The Frame

Students outline sequential events using pictures and words. This enables students to understand time-sequenced events and relationships.

1.	2.	3.	4.
5.	6.	7.	8.

HEALTH AND PHYSICAL EDUCATION APPLICATIONS

- Outlining the decision making steps

- Describing how to relax

- Outlining the proper steps in a sport skill (e.g., tennis backhand, golf swing)

- Planning an event (e.g., field day, health fair, bicycle rodeo)

KWPL
Know, Want to Know, Predict, Learn

Students use prior knowledge as a bridge to a new concept or skill. This strategy enhances the student's ability to recall, analyze, apply, and evaluate information.

Know	Want to Know	Predict	Learn

HEALTH AND PHYSICAL EDUCATION APPLICATIONS

- Discussing the effects of alcohol, tobacco, and other drugs

- Applying advanced sport skills (e.g., moving from catch and volley to regulation volleyball)

- Learning to navigate the healthcare system

PMI
Plus, Minus, Interesting Questions

Students examine an issue evaluating facts, concepts, and ideas and noting the advantages and disadvantages of each. Students can use this strategy to pose new questions and research additional information needed to make an evaluation. Individual students can use this strategy after cooperative groups or class discussion to frame his/her ideas on the subject.

ISSUE:	
P (+)	
M (-)	
I (?)	

HEALTH AND PHYSICAL EDUCATION APPLICATIONS

- Comparing health careers

- Making health services decisions

- Comparing fitness activities

- Examining and evaluating fitness facilities and/or equipment

T-Chart

Students clarify concepts or ideas or collect specific examples for an idea or behavior. This strategy allows students to record and categorize observations.

Title:	
Looks Like	**Sounds Like**

HEALTH AND PHYSICAL EDUCATION APPLICATIONS

- Critiquing role-play

- Analyzing group process

- Practicing body language and communication skills

- Evaluating spectator actions at a sporting event